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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): KIM, Sang-Soon et al.

Examiner: WILLIE, Daniel J. Jr.

Serial No.: 10/023,368 638

Group Art Unit: 2617

Filed: December 17, 2001

Docket: 678-723 (P9785)

For: **APPARATUS AND METHOD FOR CONTROLLING OPENING
AND CLOSING OF SB-BODY IN AN AUTOMATICALLY AND
MANUALLY FOLDABLE MOBILE COMMUNICATION TERMINAL**

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

RESPONSE TO NON-COMPLIANT APPEAL BRIEF

Sir:

In response to the Notice of Non-Compliant Appeal Brief dated April 16, 2007,
please consider the attached APPEAL BRIEF that complies with 37 C.F.R. § 41.37(c).

No fees are required for this response.

Respectfully submitted,

Paul J. Farrell

Reg. No.: 33,494

Attorney for Applicant(s)

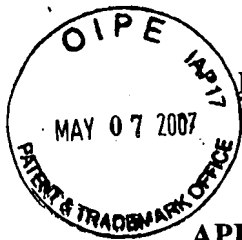
THE FARRELL LAW FIRM
333 Earle Ovington Blvd., Suite 701
Uniondale, New York 11553
516-228-3565

CERTIFICATE OF MAILING 37 C.F.R. §1.8(a)

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Dated: May 3, 2007

Thomas C. Schoeffler



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE
BOARD OF PATENT APPEALS AND INTERFERENCES**

APPLICANT(S): KIM, Sang-Soon et al.

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TERMINAL**

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APPEAL BRIEF

REAL PARTY IN INTEREST

The real party in interest is Samsung Electronics Co, Ltd, the assignee of the subject application, having an office at 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea.

RELATED APPEALS AND INTERFERENCES

To the best of Appellants' knowledge and belief, there are no currently pending related appeals, interferences or judicial proceedings.

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8 (a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postpaid in an envelope, addressed to: Mail Stop Appeal Brief-Patents, Commissioner for Patents, Alexandria, VA 22313-1450, on May 3, 2007.

Dated: May 3, 2007



Thomas C. Schoeffler

STATUS OF CLAIMS

Original Claims 1-4 were filed on December 17, 2001. Claim 3 was amended in an Amendment filed September 2, 2004. Claims 1 and 3 were amended in an Amendment filed April 15, 2005. Claims 1 and 3 were amended in an Amendment filed October 27, 2005. A listing of the claims was provided in an Amendment filed October 31, 2006 with no amendments to the claims. Thus, Claims 1-4 are pending in the Appeal. Claims 1 and 3 are in independent form. For the purposes of this appeal, Claim 1 stands or falls alone, Claim 2 stands or falls alone, and Claims 3 and 4 stand or fall together.

STATUS OF AMENDMENTS

An Office Action marked "Final" was mailed on July 31, 2006. A listing of the claims was provided in an Amendment filed on October 31, 2006 with no amendments to the claims. An Advisory Action issued on November 24, 2006 that did not indicate, in item 11, whether the listing of claims in the Amendment filed October 31, 2006 would be entered upon the filing of an Appeal. For purposes of this Appeal, Appellants presume the listing of claims in the October 31, 2006 Amendment has been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

The invention as recited in Claim 1 relates to an apparatus for controlling opening and closing of a folder in a foldable mobile communication terminal having a main body and a sub-body foldably mounted on the main body, the sub-body being opened or closed either automatically or manually in compliance with a user's selection. FIGs. 1A and 1B, Specification at page 3, lines 1-4, and from page 5, line 26, to page 6, line 18.

The apparatus includes a sensor means, a sub-body opening and closing unit, a current sensing unit, and a control unit. FIGs. 2 and 3, Specification at page 6, lines 2-18, page 6, lines 22-23, and from page 7, line 17, to page 8, line 27.

The sensor means is arranged at one end of the main-body and the sub-body, for detecting a fully open status or a fully closed status of the sub-body on the main-body. FIGs. 3 and 4, Specification at page 6, lines 14-18, page 7, lines 13-15, and from page 7, line 27, to page 8, line 14.

The sub-body opening and closing drive unit is for automatically opening or closing the sub-body by means of activating a sub-body drive motor rotatably coupled with one end of the sub-body, under control of a control unit. FIGs. 2 and 3, Specification at page 6, lines 2-14, from page 7, line 17, to page 8, line 17, and at page 9, lines 7-23.

The current sensing unit is coupled to the control unit for sensing an amount of motor drive current applied to the sub-body drive motor and providing the sensed amount of motor drive current to the control unit. FIG. 3, Specification at page 8, lines 14-17, and from page 9, line 17, to page 11, line 11.

The control unit is for taking a measurement of the amount of the motor drive current output from the current sensing unit upon enabling of an automatic opening or closing operation of the sub-body in the sub-body opening and closing drive unit in compliance with the user's selection of automatic sub-body control, and for discontinuing to drive the sub-body drive motor when the measured amount of the motor drive current is larger than a predetermined current threshold value and the sensor means senses one of a fully open status and a fully closed status of the sub-body and discontinuing to drive the sub-body drive motor after driving the sub-body drive motor for at least more than one cycle of the motor when the measured amount of the motor drive current is larger than the predetermined current threshold value and the sensor means senses neither one of a fully open status and a fully closed status of the sub-body. FIGs. 2 and 3, Specification from page 6, line 20, to page 8, line 15, and from page 8, line 29, to page 11, line 11.

The invention as recited in Claim 2 relates to the sensor means of Claim 1. FIGs. 1A, 1B, and 2-4, Specification at page 6, lines 14-18, from page 7, line 19, to page 8, line 27, from page 9, line 25, to page 11, line 11.

The sensor means further includes a first magnet, a second magnet, an opening sensor, and a closing sensor. FIGs. 2-4, Specification at page 6, lines 14-18, from page 7, line 19, to page 8, line 27, from page 9, line 25, to page 11, line 11.

The first magnet is disposed in a hinge rotatably connected to one end of the sub-body and the main-body, the hinge being provided with the sub-body opening and closing drive unit. FIGs. 3 and 4, Specification from page 7, lines 27, to page 8, line 17.

The second magnet is mounted inwardly on an inner surface of the sub-body, spaced apart from the hinge. FIGs. 3 and 4, Specification from page 7, line 27, to page 8, line 17, and from page 9, line 7, to page 11, line 11.

The opening sensor is disposed, in the vicinity of the hinge, on one end of a lower surface of a printed circuit board inside the main-body, for providing the control unit with a first sensing signal indicating a fully open status of the sub-body from the main-body, when the first magnet is placed in close proximity to the opening sensor. FIGs. 2-4, Specification from page 7, line 13, to page 8, line 27, and from page 9, line 7, to page 11, line 11.

The closing sensor is disposed in a position opposing to the second magnet, spaced apart from the hinge, on the printed circuit board inside the main-body, for providing the control unit with a second sensing signal indicating a fully closed status of the sub-body onto the main-body, when the second magnet is placed in close proximity to the closing sensor. FIGs. 2-4, Specification from page 7, line 13, to page 8, line 27, and from page 9, line 7, to page 11, line 11.

The invention as recited in Claim 3 relates to a method for controlling automatic opening and closing of a folder in a foldable mobile communication terminal having a main body, a sub-body foldably mounted on the main body, a sensor means for detecting a fully open status or a fully closed status of the sub-body with respect to the main-body, and a sub-body opening and closing drive unit for automatically opening or closing the sub-body by activating a sub-body drive motor, under control of a control unit. FIGs. 1A, 1B and 5, Specification from page 3, lines 1-8, and from page 5, line 26, to page 6, line 18.

The method includes taking a measurement of an amount of motor driving current applied to the sub-body drive motor when there is an activation of the sub-body opening and closing drive unit to drive the sub-body drive motor for opening or closing the sub-body in compliance with a user's selection to automatic opening or closing by a switch. FIG. 5, Specification from page 8, line 14, to page 11, line 11.

The method also includes discontinuing to drive the sub-body drive motor when the measured amount of motor driving current is greater than a predetermined current threshold value and the sensor means detects one of a fully open status and a fully closed status of the sub-body. FIG. 5, Specification at page 10, lines 4-18.

The method also includes discontinuing to drive the sub-body drive motor after driving the sub-body drive motor for at least more than one cycle of the motor when the measured amount of the motor drive current is greater than the predetermined current threshold value and the sensor means senses neither one of a fully open status and a fully closed status of the sub-body. FIG. 5, Specification at page 20, lines 4-18.

GROUND FOR REJECTION TO BE REVIEWED ON APPEAL

Whether Claim 1 under 35 U.S.C. § 103(a) is unpatentable over U.S. Patent No. 6,628,974 B1 to Lim ("Lim") in view of U.S. Patent No. 5,723,959 to Iwata ("Iwata").

Whether Claim 2 under 35 U.S.C. § 103(a) is unpatentable over Lim, Iwata and U.S. Patent No. 6,423,392 B1 to Toba ("Toba").

Whether Claims 3 and 4 under 35 U.S.C. § 103(a) are unpatentable over Lim in view of Iwata.

ARGUMENT

1. Claim 1 is patentable over Lim in view of Iwata

Claim 1 was said to be unpatentable over Lim in view of Iwata.

The present invention is directed to an apparatus and method for controlling opening and closing of a sub-body in an automatically and manually foldable mobile communication terminal. An present invention provides an apparatus and method for more efficiently and precisely controlling the position of opening and closing a sub-body of an automatic foldable mobile communication terminal.

Claim 1 is directed to an apparatus for controlling opening and closing of a folder in a foldable mobile communication terminal having a main body and a sub-body foldably mounted on

the main body, the sub-body being opened or closed either automatically or manually in compliance with a user's selection. Claim 1 recites, in part, a sensor means at one end of the main-body and the sub-body, for detecting a fully open status or a fully closed status of the sub-body with respect to the main-body, and a control unit for discontinuing to drive the sub-body motor when the measured amount of motor driving current is greater than a predetermined current threshold value and the sensor means detects one of a fully open status and a fully closed status of the sub-body.

The Examiner has failed to show that Lim, Iwata, or any combination thereof, teaches or reasonably suggests the sensor means recited in Claim 1, and a control unit for discontinuing to drive the sub-body drive motor when the measured amount of the motor drive current is larger than a predetermined current threshold value and the sensor means senses one of a fully open status and a fully closed status of the sub-body, as recited in Claim 1.

The Examiner relies on position detecting section 50 including position detectors 51 and 52 in Lim for satisfying the sensor means recited in Claim 1. The Examiner concedes that Lim does not disclose a current sensing unit and a control unit as recited in Claim 1. The Examiner states that Iwata shows that the recited current sensing unit and control unit are well known in the art, and asserts that it would have been obvious to one skilled in the art at the time the invention was made to combine the teachings of Lim and Iwata.

Lim describes a folder operating apparatus for a cellular phone. As shown in FIG. 5, a folder type cellular phone 1 includes a body 3 provided with various kinds of manipulation keys and a microphone, and a folder 2 provided with a display window for displaying various kinds of information and a speaker.

Iwata describes a power window driving control device in which a foreign object is not continued to be caught between a window glass and a window frame even if the foreign object exists on the path along which the window glass is raised. Iwata describes six embodiments of a power window driving control device that vertically move a window glass. However, Iwata explains in col. 30, lines 14-22, that the disclosed power window driving control device can also be applied to a window glass that is moved horizontally, or to a window glass that is moved in an inclined or a transverse direction. The power window driving control device of the six embodiments is large and includes numerous relays and switches. Iwata nowhere teaches or reasonably suggests applying the power window driving control device to a foldable mobile communication terminal.

Lim explains from col. 6, line 60, to col. 7, line 3, that position detecting section 50 includes position detectors 51 and 52 installed on the positions of the power transferring section 20 and the rotating section 10 to face each other, and these position detectors 51 and 52 obtain the same-phase information and apply a specified control signal to the driving section 11. If the rotating section 10 and the power transferring section 20 have the same phase, the position detecting section 50 detects it, and applies the stop control signal to the driving section 11 to control the driving section 11.

Position detectors 51 and 52 merely sense whether the rotating section 10 and the power transferring section have the same phase, and **do not** detect a fully open status or a fully closed status of the folder 3 with respect to the body 1. Lim nowhere teaches or reasonably suggests utilizing position detectors 51 and 52 to detect a fully open status or a fully closed status of the folder 2 on the main body 3. Accordingly, Lim fails to teach or reasonably suggest the sensor means as recited in the claims.

In addition, Lim only discontinues driving the motor based on a single condition that the position detectors 51 and 52 have the same phase. In contrast, the present invention discontinues driving the motor based on two conditions including (1) when an amount of motor drive current is larger than a predetermined threshold value **and** (2) when a sensor means senses either one of a fully open status or a fully closed status of a sub-body.

The present invention discontinues to drive a motor on both of the above conditions and, therefore, the present invention can appropriately and more exactly control a closing and opening position of the sub-body.

Lim, Iwata, or any combination thereof, fails to teach or reasonably suggest an apparatus for controlling opening and closing of a folder in a foldable mobile communication terminal having a main body and a sub-body foldably mounted on the main body, the sub-body being opened or closed either automatically or manually in compliance with a user's selection, the apparatus including a sensor means arranged at one end of the main-body and the sub-body, for detecting a fully open status or a fully closed status of the sub-body on the main-body; a sub-body opening and closing drive unit for automatically opening or closing the sub-body by means of activating a sub-body drive motor rotatably coupled with the one end of the sub-body, under control of a control unit; a current sensing unit coupled to the control unit for sensing an amount of motor drive current applied to the sub-body drive motor and providing the sensed amount of motor drive current to the control unit;

and the control unit for taking a measurement of the amount of the motor drive current output from the current sensing unit upon enabling of an automatic opening or closing operation of the sub-body in the sub-body opening and closing drive unit in compliance with the user's selection of automatic sub-body control, and for discontinuing to drive the sub-body drive motor when the measured amount of the motor drive current is larger than a predetermined current threshold value and the sensor means senses one of a fully open status and a fully closed status of the sub-body and discontinuing to drive the sub-body drive motor after driving the sub-body drive motor for at least more than one cycle of the motor when the measured amount of the motor drive current is larger than the predetermined current threshold value and the sensor means senses neither one of a fully open status and a fully closed status of the sub-body, as recited in Claim 1.

The Examiner has failed to show that Lim, Iwata, or any combination thereof, teaches or reasonably suggests the sensor means recited in Claim 1, and a control unit for discontinuing to drive the sub-body drive motor when the measured amount of the motor drive current is larger than a predetermined current threshold value and the sensor means senses one of a fully open status and a fully closed status of the sub-body, as recited in Claim 1. It is well known that all of the claimed limitations must be taught or suggested by the prior art, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings. *In re Vaek*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Furthermore, Lim describes a cellular phone in which a folder can be opened and closed both automatically and manually.

Iwata describes a power window driving control device which moves a window glass of a vehicle in directions by the driving force of a motor. The Iwata power window driving control device enables a foreign object to not continue to be caught between a window glass and a window frame even if a foreign object exists on the path along which the window glass is raised. The Iwata power window driving control device is large and includes numerous relays and switches, and effects vertical movement of a window glass. Iwata is not reasonably pertinent to the particular problem with which Appellants were concerned, e.g. for providing an apparatus for more efficiently and precisely controlling the position of opening and closing a sub-body (folder) of an automatic foldable mobile communication terminal.

One skilled in the mobile communication terminal art would not have considered the Iwata power window driving control device to control opening and closing of a sub-body in an automatically and manually foldable mobile communication terminal because the Iwata power window driving control device is large and includes numerous relays and switches, and effects movement of a window glass in which a foreign object is not continued to be caught between a window glass and a window frame even if the foreign object exists on the path along which the window glass is raised.

Evidence of nonanalogy is apparent because Iwata is classified in 318/447 while Lim is classified in 455/575, and because Iwata is different in structure and function from the present invention. The differences in structure and function of Iwata to the present invention carry far greater weight regarding analogy of Iwata to the present invention. *In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973).

Iwata is **nonanalogous art** and is not applicable to addressing the obviousness of the subject matter at issue because Iwata is not in the field of Appellants' endeavor, and Iwata is not reasonably pertinent to the particular problem with which Appellants were concerned. For a reference to be applicable to addressing obviousness of the subject matter at issue, the reference must either be in the field of Appellants' endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

One skilled in the art at the time the invention was made would not have arrived at the present invention based on Lim, Iwata, or any combination thereof, because the skilled artisan would not combine a power window driving control device for a window in a vehicle to prevent crushing an object when closing the window, with a driving mechanism for opening a sub-body of a cellular phone.

In addition, the Examiner has used Appellants' application as a blueprint and has merely focused on the differences between Lim and Iwata, and the claimed invention, and then stated that the differences themselves or individually are obvious after picking and choosing selected items from the prior art. It is well known that it is improper to use the claims as a frame, and use individual parts of prior art as a mosaic to recreate a facsimile of the invention. *Interconnect Planning Corp. v. Feil*, 227 USPQ 2d 543, 551 (Fed. Cir. 1985).

The Examiner has failed to establish a *prima facie* case of obviousness for at least these reasons.

2. Claim 2 is patentable over Lim in view of Iwata and Toba

Claim 2 was said to be unpatentable over Lim in view of Iwata and Toba.

Additional features of the invention recited in Claim 1 are found in dependent Claim 2. Dependent Claim 2 recites that the sensor means includes a first magnet, a second magnet, an opening sensor, and a closing sensor.

The first magnet is disposed in a hinge rotatably connected to one end of the sub-body and the main-body, said hinge being provided with the sub-body opening and closing drive unit.

The second magnet is mounted inwardly on an inner surface of the sub-body, spaced apart from the hinge.

The opening sensor is disposed, in the vicinity of the hinge, on one end of a lower surface of a printed circuit board inside the main-body, for providing the control unit with a first sensing signal indicating a fully open status of the sub-body from the main-body, when the first magnet is placed in close proximity to the opening sensor.

The closing sensor is disposed in a position opposing to the second magnet, spaced apart from the hinge, on the printed circuit board inside the main-body, for providing the control unit with a second sensing signal indicating a fully closed status of the sub-body onto the main-body, when the second magnet is placed in close proximity to the closing sensor.

Toba fails to supplement the deficiencies of Lim and Iwata because Toba nowhere teaches or reasonably suggests a an apparatus for controlling opening and closing of a folder in a foldable mobile communication terminal having a main body and a sub-body foldably mounted on the main body, the sub-body being opened or closed either automatically or manually in compliance with a user's selection, the apparatus including a sensor means arranged at one end of the main-body and the sub-body, for detecting a fully open status or a fully closed status of the sub-body on the main-body; a sub-body opening and closing drive unit for automatically opening or closing the sub-body by means of activating a sub-body drive motor rotatably coupled with the one end of the sub-body, under control of a control unit; a current sensing unit coupled to the control unit for sensing an amount of motor drive current applied to the sub-body drive motor and providing the

sensed amount of motor drive current to the control unit; and the control unit for taking a measurement of the amount of the motor drive current output from the current sensing unit upon enabling of an automatic opening or closing operation of the sub-body in the sub-body opening and closing drive unit in compliance with the user's selection of automatic sub-body control, and for discontinuing to drive the sub-body drive motor when the measured amount of the motor drive current is larger than a predetermined current threshold value and the sensor means senses one of a fully open status and a fully closed status of the sub-body and discontinuing to drive the sub-body drive motor after driving the sub-body drive motor for at least more than one cycle of the motor when the measured amount of the motor drive current is larger than the predetermined current threshold value and the sensor means senses neither one of a fully open status and a fully closed status of the sub-body, as recited in Claim 2.

The Examiner has failed to establish a *prima facie* case of obviousness for at least these reasons.

3. Claims 3 and 4 are patentable over Lim in view of Iwata

Claims 3 and 4 were said to be unpatentable over Lim in view of Iwata.

The present invention is directed to an apparatus and method for controlling opening and closing of a sub-body in an automatically and manually foldable mobile communication terminal. An present invention provides an apparatus and method for more efficiently and precisely controlling the position of opening and closing a sub-body of an automatic foldable mobile communication terminal.

Claim 3 is directed to a method for method for controlling opening and closing of a folder in a foldable mobile communication terminal having a main body and a sub-body foldably mounted on the main body, respectively. Claim 3 recites, in part, a sensor means for detecting a fully open status or a fully closed status of the sub-body with respect to the main-body, and a step of discontinuing to drive the sub-body motor when the measured amount of motor driving current is greater than a predetermined current threshold value and the sensor means detects one of a fully open status and a fully closed status of the sub-body.

Additional features of the invention recited in Claim 3 are found in dependent Claim 4. Dependent Claim 4 recites that the measurement of the amount of motor driving current is carried

out in a period of several tens of milliseconds.

The Examiner has failed to show that Lim, Iwata, or any combination thereof, teaches or reasonably suggests the sensor means recited in Claim 3, and a step for discontinuing to drive the sub-body drive motor when the measured amount of the motor drive current is larger than a predetermined current threshold value and the sensor means senses one of a fully open status and a fully closed status of the sub-body, as recited in Claim 3.

The Examiner relies on position detecting section 50 including position detectors 51 and 52 in Lim for satisfying the sensor means recited in Claim 3. The Examiner concedes that Lim does not disclose a current sensing unit and a control unit as recited in Claim 3. The Examiner states that Iwata shows that the recited current sensing unit and control unit are well known in the art, and asserts that it would have been obvious to one skilled in the art at the time the invention was made to combine the teachings of Lim and Iwata.

Lim describes a folder operating apparatus for a cellular phone. As shown in FIG. 5, a folder type cellular phone 1 includes a body 3 provided with various kinds of manipulation keys and a microphone, and a folder 2 provided with a display window for displaying various kinds of information and a speaker.

Iwata describes a power window driving control device in which a foreign object is not continued to be caught between a window glass and a window frame even if the foreign object exists on the path along which the window glass is raised. Iwata describes six embodiments of a power window driving control device that vertically move a window glass. However, Iwata explains in col. 30, lines 14-22, that the disclosed power window driving control device can also be applied to a window glass that is moved horizontally, or to a window glass that is moved in an inclined or a transverse direction. The power window driving control device of the six embodiments is large and includes numerous relays and switches. Iwata nowhere teaches or reasonably suggests applying the power window driving control device to a foldable mobile communication terminal.

Lim explains from col. 6, line 60, to col. 7, line 3, that position detecting section 50 includes position detectors 51 and 52 installed on the positions of the power transferring section 20 and the rotating section 10 to face each other, and these position detectors 51 and 52 obtain the same-phase information and apply a specified control signal to the driving section 11. If the rotating section 10 and the power transferring section 20 have the same phase, the position detecting section 50 detects

it, and applies the stop control signal to the driving section 11 to control the driving section 11.

Position detectors 51 and 52 merely sense whether the rotating section 10 and the power transferring section have the same phase, and **do not** detect a fully open status or a fully closed status of the folder 3 with respect to the body 1. Lim nowhere teaches or reasonably suggests utilizing position detectors 51 and 52 to detect a fully open status or a fully closed status of the folder 2 on the main body 3. Accordingly, Lim fails to teach or reasonably suggest the sensor means as recited in the claims.

In addition, Lim only discontinues driving the motor based on a single condition that the position detectors 51 and 52 have the same phase. In contrast, the present invention discontinues driving the motor based on two conditions including (1) when an amount of motor drive current is larger than a predetermined threshold value **and** (2) when a sensor means senses either one of a fully open status or a fully closed status of a sub-body.

The present invention discontinues to drive a motor on both of the above conditions and, therefore, the present invention can appropriately and more exactly control a closing and opening position of the sub-body.

Lim, Iwata, or any combination thereof, also fails to teach or reasonably suggest a method for controlling automatic opening and closing of a folder in a foldable mobile communication terminal having a main body, a sub-body foldably mounted on the main body, a sensor means for detecting a fully open status or a fully closed status of the sub-body with respect to the main-body, and a sub-body opening and closing drive unit for automatically opening or closing the sub-body by activating a sub-body drive motor, under control of a control unit, the method including taking a measurement of an amount of motor driving current applied to the sub-body drive motor when there is an activation of the sub-body opening and closing drive unit to drive the sub-body drive motor for opening or closing the sub-body in compliance with a user's selection to automatic opening or closing by a switch; discontinuing to drive the sub-body drive motor when the measured amount of motor driving current is greater than a predetermined current threshold value and the sensor means detects one of a fully open status and a fully closed status of the sub-body; and, discontinuing to drive the sub-body drive motor after driving the sub-body drive motor for at least more than one cycle of the motor when the measured amount of the motor drive current is greater than the

predetermined current threshold value and the sensor means senses neither one of a fully open status and a fully closed status of the sub-body, as recited in Claim 3.

The Examiner has failed to show that Lim, Iwata, or any combination thereof, teaches or reasonably suggests the sensor means recited in Claim 3, and a step for discontinuing to drive the sub-body drive motor when the measured amount of the motor drive current is larger than a predetermined current threshold value and the sensor means senses one of a fully open status and a fully closed status of the sub-body, as recited in Claim 3. It is well known that all of the claimed limitations must be taught or suggested by the prior art, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings. *In re Vaek*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Furthermore, Lim describes a cellular phone in which a folder can be opened and closed both automatically and manually.

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One skilled in the mobile communication terminal art would not have considered the Iwata power window driving control device to control opening and closing of a sub-body in an automatically and manually foldable mobile communication terminal because the Iwata power window driving control device is large and includes numerous relays and switches, and effects movement of a window glass in which a foreign object is not continued to be caught between a window glass and a window frame even if the foreign object exists on the path along which the window glass is raised.

Evidence of nonanalogy is apparent because Iwata is classified in 318/447 while Lim is classified in 455/575, and because Iwata is different in structure and function from the present invention. The differences in structure and function of Iwata to the present invention carry far greater weight regarding analogy of Iwata to the present invention. *In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973).

Iwata is **nonanalogous art** and is not applicable to addressing the obviousness of the subject matter at issue because Iwata is not in the field of Appellants' endeavor, and Iwata is not reasonably pertinent to the particular problem with which Appellants were concerned. For a reference to be applicable to addressing obviousness of the subject matter at issue, the reference must either be in the field of Appellants' endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

One skilled in the art at the time the invention was made would not have arrived at the present invention based on Lim, Iwata, or any combination thereof, because the skilled artisan would not combine a power window driving control device for a window in a vehicle to prevent crushing an object when closing the window, with a driving mechanism for opening a sub-body of a cellular phone.

In addition, the Examiner has used Appellants' application as a blueprint and has merely focused on the differences between Lim and Iwata, and the claimed invention, and then stated that the differences themselves or individually are obvious after picking and choosing selected items from the prior art. It is well known that it is improper to use the claims as a frame, and use individual parts of prior art as a mosaic to recreate a facsimile of the invention. *Interconnect Planning Corp. v. Feil*, 227 USPQ 2d 543, 551 (Fed. Cir. 1985).

The Examiner has failed to establish a *prima facie* case of obviousness for at least these reasons.

CONCLUSION


Based on at least the foregoing, and as the Examiner has failed to make out a *prima facie* case for an obviousness rejection, the rejections of Claims 1-4 must be reversed.

Accordingly, independent Claim 1 is allowable over Lim, Iwata, or any combination thereof.

Dependent Claim 2 is also allowable over Lim, Iwata, Toba, or any combination thereof for at least the above reasons.

Independent Claim 3 and dependent Claim 4 are also allowable over Lim, Iwata, or any combination thereof for at least the above reasons.

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By: 
Paul J. Farrell
Reg. No.: 33,494
Attorney for Appellants

THE FARRELL LAW FIRM
333 Earle Ovington Blvd., Suite 701
Uniondale, New York 11553
(516) 228-3565 (tel)
(516) 228-8475/8476 (fax)

PJF/TCS/dr

CLAIMS APPENDIX

Claim 1. (Previously Presented) An apparatus for controlling opening and closing of a folder in a foldable mobile communication terminal having a main body and a sub-body foldably mounted on the main body, said sub-body being opened or closed either automatically or manually in compliance with a user's selection, said apparatus comprising:

a sensor means arranged at one end of the main-body and the sub-body, for detecting a fully open status or a fully closed status of the sub-body on the main-body;

a sub-body opening and closing drive unit for automatically opening or closing the sub-body by means of activating a sub-body drive motor rotatably coupled with said one end of the sub-body, under control of a control unit;

a current sensing unit coupled to the control unit for sensing an amount of motor drive current applied to the sub-body drive motor and providing the sensed amount of motor drive current to the control unit; and

said control unit for taking a measurement of the amount of the motor drive current output from said current sensing unit upon enabling of an automatic opening or closing operation of the sub-body in the sub-body opening and closing drive unit in compliance with the user's selection of automatic sub-body control, and for discontinuing to drive the sub-body drive motor when the measured amount of the motor drive current is larger than a predetermined current threshold value and the sensor means senses one of a fully open status and a fully closed status of the sub-body and discontinuing to drive the sub-body drive motor after driving the sub-body drive motor for at least more than one cycle of the motor when the measured amount of the motor drive current is larger than the predetermined current threshold value and the sensor means senses neither one of a fully open status and a fully closed status of the sub-body.

Claim 2. (Original) The apparatus as claimed in claim 1, wherein said sensor means further comprises:

a first magnet disposed in a hinge rotatably connected to one end of the sub-body and the main-body, said hinge being provided with the sub-body opening and closing drive unit;

a second magnet mounted inwardly on an inner surface of the sub-body, spaced apart from the hinge;

an opening sensor disposed, in the vicinity of the hinge, on one end of a lower surface of a printed circuit board inside the main-body, for providing the control unit with a first sensing signal indicating a fully open status of the sub-body from the main-body, when the first magnet is placed in close proximity to the opening sensor; and

a closing sensor disposed in a position opposing to the second magnet, spaced apart from the hinge, on the printed circuit board inside the main-body, for providing the control unit with a second sensing signal indicating a fully closed status of the sub-body onto the main-body, when the second magnet is placed in close proximity to the closing sensor.

Claim 3. (Previously Presented) A method for controlling automatic opening and closing of a folder in a foldable mobile communication terminal having a main body, a sub-body foldably mounted on the main body, a sensor means for detecting a fully open status or a fully closed status of the sub-body with respect to the main-body, and a sub-body opening and closing drive unit for automatically opening or closing the sub-body by activating a sub-body drive motor, under control of a control unit, the method comprising the steps of;

taking a measurement of an amount of motor driving current applied to the sub-body drive motor when there is an activation of the sub-body opening and closing drive unit to drive the sub-body drive motor for opening or closing the sub-body in compliance with a user's selection to automatic opening or closing by a switch;

discontinuing to drive the sub-body drive motor when the measured amount of motor driving current is greater than a predetermined current threshold value and the sensor means detects one of a fully open status and a fully closed status of the sub-body; and,

discontinuing to drive the sub-body drive motor after driving the sub-body drive motor for at least more than one cycle of the motor when the measured amount of the motor drive current is greater than the predetermined current threshold value and the sensor means senses neither one of a fully open status and a fully closed status of the sub-body.

Claim 4. (Original) The method as claimed in claim 3, wherein the measurement of the amount of motor driving current is carried out in a period of several tens of milliseconds.

EVIDENCE APPENDIX

There is no evidence submitted pursuant to 37 C.F.R. § 1.130, 1.131, 1.132 or entered by the Examiner and relied upon by Appellants.

RELATED PROCEEDINGS APPENDIX

There are no known decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 C.F.R. § 41.37.